

MISSION ANALYSIS DURING FUTURE MILITARY
OPERATIONS ON URBANIZED TERRAIN

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

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Fort Leavenworth, Kansas
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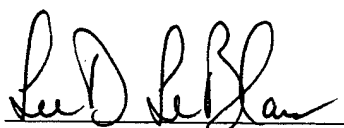
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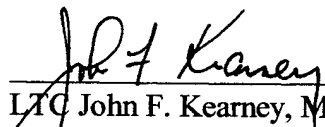
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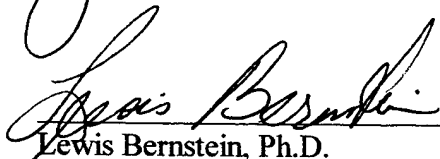
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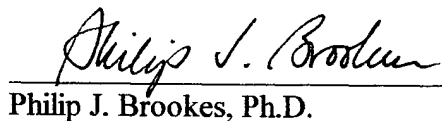


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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

MISSION ANALYSIS DURING FUTURE MILITARY OPERATIONS ON URBANIZED TERRAIN by MAJ Willard M. Burleson III, USA, 82 pages.

As global urbanization increases, the likelihood of United States (US) military participation in combat operations in urban areas also grows proportionally.

This study examines the mission analysis step of the military decision-making process (MDMP) for military operations on urbanized terrain (MOUT). By reviewing urban combat in Aachen, Manila, Hue, Panama City, Mogadishu, and Grozny, as well as US Army and Marine Corps doctrine, this study summarizes characteristics for consideration during mission analysis for MOUT.

At present, the US Army's manual, FM 90-10, *Military Operations on Urbanized Terrain*, published in 1979, is being rewritten. As the doctrinal review process begins, the Army must consider the planning and preparation processes for operational and tactical warfighting on urbanized terrain. Mission analysis, the foundation of the military decision-making process, remains critical to success in planning for Army operations, but particularly in the urban environment. The emerging threats and conditions of future urban combat will require commanders and staffs to examine their traditional methods of analysis for MOUT and develop more thorough methods of planning for urban combat. This study concludes with an outline of mission analysis that will assist commanders and staffs in producing well-planned orders for future MOUT.

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CHAPTER 1

INTRODUCTION

Best policy in war--thwart the enemy's strategy, second best--disrupt his alliances through diplomacy, third best--attack his army in the field, worst strategy--attack walled cities. Attack cities only when there is no alternative. (Griffith 1963, 77-78)

Sun Tzu, *The Art of War*

Background

Sun Tzu's words, recorded over two thousand years ago, represent twentieth century United States Army doctrine for fighting on urban terrain and in built up areas. The 1976 edition of the Army Field Manual (FM) 100-5, *Operations*, the Army's doctrinal foundation near the end of the Cold War, stated, "commanders should avoid committing forces to the attack of urban areas unless the mission absolutely requires doing so" (United States Army 1976, 81). Adherence to this principle, though sound, is becoming increasingly difficult as world urbanization increases. The current version of FM 100-5 (1993) limits its discussion of urban operations to the following passage:

Urban operations present unique and complex challenges to the Army forces. Urban operations can occur in any of the geographical environments. They can constrain technological advantages; they impact on battle tempo; they force units to fight as small, decentralized elements; they also create difficult moral dilemmas due to the proximity of large numbers of civilians. Commanders must enforce discipline in their operations to minimize unnecessary collateral damage and civilian casualties. (US Army 1993, 14-4)

Recent forecasts predict, "that 85 percent of the world's population will reside in urbanized areas by the year 2025" (United States Marine Corps 1998, 1-1). Many of these large urban areas will be in third world countries where the control of a major city

or urban area may mean control of the country as well. As global urbanization increases, the likelihood of United States military participation in combat operations in urban areas also grows proportionally. One must assume potential adversaries have studied the lessons of Panama, Somalia, Haiti, and Chechnya and have realized that the urban environment and its tendency for increased casualties, resource expenditure, and collateral damage, can be the United States' or a coalition's "Achilles heel." A key lesson learned by US adversaries in the Battles of Hue and Mogadishu is that urban combat denies the better-equipped military many of its advantages.

At present, the United States Army's manual, FM 90-10, *Military Operations on Urbanized Terrain*, published in 1979, is being rewritten. As the doctrinal review process begins, it remains imperative for the Army to analyze all aspects of its operational and tactical warfighting on urban terrain. The planning and preparation processes for conducting military operations merit analysis and scrutiny as part of the review.

Since 1932, the Army has published ten versions of FM 101-5, *Staff Organization and Operations*. With each revision, the principal analytical tool, which commanders and staffs use to analyze problems and formulate solutions, the decision-making process, gets revised. The military decision-making process (MDMP) continues to evolve as changes to the art and science of war occur. The MDMP is the foundation on which deliberate and time-constrained planning is based. The emerging threats and conditions of future military operations on urbanized terrain (MOUT) will require commanders and staffs to examine their traditional methods of analysis for urban combat and look for new, more-thorough methods of planning and conducting operations. Mission analysis, the

foundation of the military decision-making process, remains critical to the success or failure of all Army operations, but particularly in the urban environment. An in-depth analysis conducted during the mission analysis process assists in the commander's battlefield visualization and enables him and the staff to proceed through the planning process with all facts bearing on the situation considered.

This study concludes that there are recurring unique characteristics of urban combat that must be considered during the mission analysis process for MOUT. These characteristics, when considered during the planning process, will assist commanders and staffs in producing well-planned and produced orders for future MOUT operations.

Problem Statement and Research Questions

The conditions of future MOUT require commanders and staffs to examine their traditional methods of operating and to look for improved methods of planning and conducting operations. Mission analysis, the foundation of the military decision-making process, remains critical to the success or failure of operations in the urban environment. As worldwide urbanization increases, the likelihood of the US Army conducting MOUT grows as well. The decision-making process, guided by mission analysis, must include the factors unique to MOUT and their impact on the military planning process.

The proposed thesis, "Mission Analysis for Military Operations on Urbanized Terrain" will define and examine the primary research question, What are the considerations that commanders and staffs must address when conducting mission analysis for combat operations in the future MOUT environment? To determine the characteristics and themes that may exist in the future MOUT environment and their

impact on the mission analysis process requires that several secondary research questions be posed. Answering these questions assists in analyzing the research topic.

1. What characteristics define the MOUT environment historically?
2. What threat trends will emerge in the future MOUT environment?
3. What additional factors must a mission analysis include during future MOUT?

Answering the first subordinate question establishes the historical conditions of MOUT. Analyzing several twentieth-century examples of MOUT operations and doctrine allows themes and recurring characteristics to emerge. These characteristics serve as the point of departure for answering the second subordinate question, What threat trends will emerge in the future MOUT environment? Although this may not be answered with certainty, an answer will provide a general understanding of postulated threat trends and how they may affect future urban conflict. The third question, What additional factors must a mission analysis include during future MOUT? examines the role the mission analysis plays within the MDMP and the specific role of mission analysis during future MOUT.

Assumptions

This study examines historical MOUT battles, studies of future MOUT, and their applicability to the mission analysis process within the US Army's planning process, and determines its adequacy for future tactical combat operations in urban environments.

Assuming potential adversaries realize that the US's vulnerability is the will of the people, they will seek to engage the US military in urban areas where weapon and technological advantages can be neutralized; and when casualties and combat operations

will be scrutinized, this possibility necessitates a thorough look at the methodology the Army uses to plan MOUT operations. A second assumption is that, mission analysis, if done properly, sets the conditions for commanders and staffs to conduct thorough and timely planning. Third, the historical operations used in this study are representative of MOUT operations in the twentieth century and provide common themes, which may provide insights into future MOUT. Finally, focusing the analysis on the division and brigade level in the specific areas of fire support, maneuver, intelligence, and command and control narrows the scope of research and enables all the major combat arms, combat support, and combat service support organizations and functions to be considered in the analysis.

Definition of Key Terms

Battlefield operating system (BOS). A listing of critical tactical activities. BOS provide a means of reviewing preparation or execution in discrete subsets. They include intelligence, maneuver, fire support, mobility and survivability, air defense, combat service support, and command and control (United States Army 1997, 1-18).

Battlefield visualization. The process whereby the commander develops a clear understanding of his current state with relation to the enemy and environment, envisions a desired end state, and then subsequently visualizes the sequence of activity that will move his force from its current state to the end state (United States Army 1997, 1-18).

Built-up area. A concentration of structures, facilities, and populations, such as villages, cities, and towns, that forms the economic and cultural focus for the surrounding area (United States Marine Corps 1998, K-3).

Mission analysis. The seventeen-step process, which results in the commander beginning his battlefield visualization and the staff defining the tactical problem and beginning the process of determining feasible solutions. The staff analysis should provide the commander with an understanding of the mission, enemy, terrain, troops, and time available. This thesis focuses on the first ten steps listed below. The final seven steps (11-17) of the mission analysis process are outputs produced from the first ten steps and will only be discussed if a significant change occurs as a result of the analysis of the first ten steps (United States Army 1997, 5-5).

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|--|
| <p>Step 1. Analyze the higher headquarters' order.</p> <p>Step 2. Conduct initial intelligence preparation of the battlefield (IPB).</p> <p>Step 3. Determine specified, implied, and essential tasks.</p> <p>Step 4. Review available assets.</p> <p>Step 5. Determine constraints.</p> <p>Step 6. Identify critical facts and assumptions.</p> <p>Step 7. Conduct risk assessment.</p> <p>Step 8. Determine initial commander's critical information requirements (CCIR).</p> <p>Step 9. Determine the initial reconnaissance annex.</p> <p>Step 10. Plan use of available time.</p> <p>Step 11. Write the restated mission.</p> <p>Step 12. Conduct a mission analysis briefing.</p> <p>Step 13. Approve the restated mission.</p> <p>Step 14. Develop the initial commander's intent.</p> <p>Step 15. Issue the commander's guidance.</p> <p>Step 16. Issue a warning order.</p> <p>Step 17. Review facts and assumptions.</p> |
|--|

The steps in the mission analysis

Figure 1. Mission analysis process extracted from FM 101-5, *Staff Organization and Operations*, 5-5.

Military decision-making process. The seven-step analytical process, which guides commanders, staffs, and organizations from receipt of mission to the production of an order. The MDMP helps the commander and his staff examine battlefield situations and reach logical decisions. The MDMP is a detailed, deliberate, sequential, and time-consuming process used when adequate planning time and sufficient staff support are available to thoroughly examine numerous friendly and enemy courses of action (United States Army 1997, 5-1).

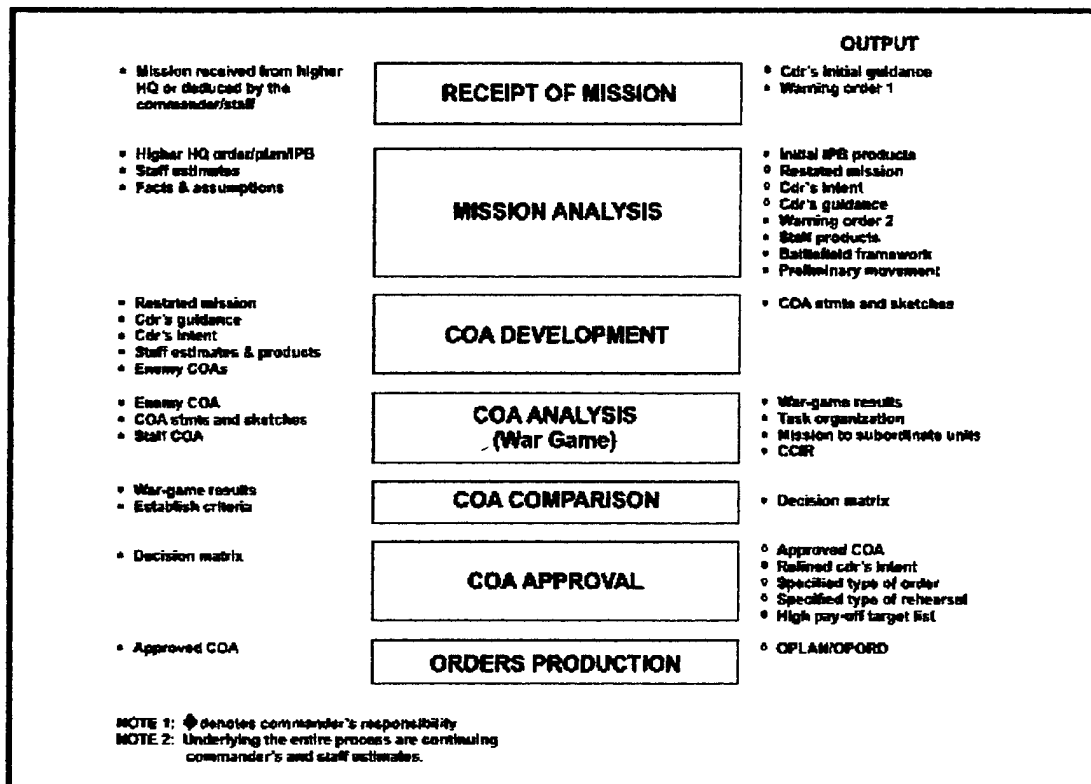


Figure 2. Military decision-making process. Extracted from FM 101-5, *Staff Organization and Planning*, pg. 5-4

Military operations on urbanized terrain. All military actions planned and conducted on a terrain complex where man-made construction impacts on the options available to commanders (United States Army 1979, 1).

Scope

This thesis analyzes and discusses mission analysis during offensive combat operations on urban terrain. Army operations on urbanized terrain exist across the entire spectrum of conflict, from humanitarian and stability and support operations to high-intensity conflict. Although this study will focus exclusively on combat in urban terrain, much of the analysis presented carries over into operations on the lower end of the conflict spectrum. The division and brigade MOUT case studies serve as the vehicle through which much of the analysis is done. These units typically possess the organic resources, capabilities, and organizations that are often in either direct or general support to combat commanders at the lower level.

By considering division and brigade capabilities, the majority of the assets that are employed during combat can be analyzed. This look at the battlefield operating systems (BOS) at the division level generates characteristics common to all tactical levels.

The research is constrained by the following: it examines only a small sample of twentieth-century ground combat offensive operations conducted on urban terrain; it uses four principal battlefield operating systems to conduct the analysis (maneuver, intelligence, fire support, and command and control); it uses only the mission analysis process from the May 1997 version of FM 101-5, *Staff Organization and Planning*; and

it provides an analysis of the mission analysis process primarily at the division and brigade level. Furthermore, the author does not analyze the techniques, which staffs use to improve upon the doctrinal mission analysis process, only the doctrinal process itself.

Importance

At present, the *Joint Doctrine for Urban Operations* (JP3-06) is being prepared and staffed and the Army's MOUT doctrine is being rewritten for the first time since it was first published in 1979. As the doctrinal review process begins, it remains imperative for the US military to analyze all aspects of its operational and tactical warfighting on urban terrain. Since 1932, the Army has published ten versions of Field Manual 101-5, *Staff Organization and Operations*, and with each revision, the decision-making process has evolved because of the changing nature of armed conflict. The threats and conditions of future MOUT will require commanders and staffs to examine their traditional methods of analysis for conducting MOUT and look for new, more thorough and innovative methods of planning and conducting operations. Mission analysis, the foundation of the MDMP, remains critical to the ultimate success or failure of operations in the urban environment. This study provides commanders and staffs with historical and theoretical characteristics as they apply to the first ten steps of the mission analysis process.

Methodology

The methodology of this research project hinges around the answering of the three secondary research questions.

1. What characteristics define the MOUT environment historically?
2. What threat trends will emerge in the future MOUT environment?
3. What additional factors must mission analysis consider during future MOUT?

Defining the historical MOUT environment using case studies of Aachen, Manila, Hue, Panama City, Mogadishu, and Grozny establishes a baseline of characteristics for consideration during mission analysis. These six twentieth-century combat operations provide a look at the common characteristics of urban combat that have emerged in the last century. In order to narrow the scope of this study, the command and control, maneuver, intelligence, and fire support battlefield operating systems are used to analyze and produce conclusions for use in the mission analysis process. The historical characteristics of urban combat and the analysis of what the future MOUT environment may look like provide a set of common characteristics that provides insights into the urban combat environment of the future. In light of these characteristics, topics and areas for additional analysis emerge that should be considered during the planning and preparation for future MOUT.

Significance of the Study

Mission analysis, the foundation of the Army's decision-making process, must be conducted in a thorough and deliberate manner. This first step in the MDMP establishes the conditions and constraints of the pending operation. A lack of analysis in this step of

the MDMP leads to inaccurate and unsound plans. The increased urbanization of the world only makes the employment of US forces into combat in urban areas more likely. By conducting an analysis of historical examples of urban conflict, as well as emerging trends in threat tactics and techniques, a number of common characteristics can be deduced which play an important role during mission analysis. Any recommendations and conclusions developed within this study on how to improve mission analysis during future MOUT should take these factors into consideration, so that their implementation in the mission analysis process is helpful and not detrimental to commanders and staffs during their planning processes.

CHAPTER 2

LITERATURE REVIEW

Introduction

This chapter will review three different categories of literature about MOUT: doctrinal foundations, historical examples, and the future of MOUT. The review of doctrinal literature will focus on the United States Army, United States Marine Corps (USMC), and Joint MOUT doctrine, as well as a review of doctrine on the MDMP. The review of historical literature includes representative works on Aachen, Manila, Hue, Panama City, Mogadishu, and Grozny. Finally, a review of Rand Arroyo Center, Center for Army Lessons Learned, US Army War College and USMC Combat Development Command studies, and works on the characteristics and predictions for future MOUT operations will provide a glimpse of what future urban combat may look like.

Doctrinal Foundations

FM 31-50. Current US Army MOUT doctrine evolved from the original World War II Army manual, FM 31-50, *Attack on a Fortified Position and Combat in Towns* (published in 1944), into the post-World War II version titled, *Combat in Fortified Areas and Towns* (published in 1952), and its revised Vietnam-era version, FM 31-50. *Combat in Fortified and Built-Up Areas* (published in 1964). All three of these manuals state in strikingly similar terms the overarching principal for fighting in built-up areas, "It may be preferable to bypass or destroy the area, rather than become engaged in the time-consuming and tedious task of seizing it from him" (US Army 1964, 27). Their principal

focus is on the tactical considerations for employing small units during offensive urban operations. All three discuss general tactical-planning considerations with one exception. Change 2 to the 1964 field manual, *Combat in Fortified and Built-Up Areas*, published in April 1970 includes urban planning considerations learned during the Vietnam Conflict. The two key areas that it discusses which have significance to current and future MOUT are: detailed analysis to permit maximum destruction of the enemy while minimizing adverse effects on noncombatants, and detailed deliberate planning for the use of all three dimensions of the urban environment (brought about by the use of helicopters).

During the Vietnam Conflict vertical maneuver and attack, in the form of airmobile forces and attack aviation, became doctrinally formalized as part of the suite of options available for commanders conducting MOUT. All three of these manuals advocated using artillery and air support to fire heavy preparatory fires into an urban area, followed by an armored or mechanized force encircling the built up area, and then infantry, accompanied by armor, to go building to building to destroy any further resistance. These manuals advocated bypassing built-up areas, but if they must be fought for, then combined arms team's attacks with devastating firepower should be used to gain the advantage. Not until 1970 did the Army's doctrinal MOUT literature formally discuss the impact of collateral damage, treatment of noncombatants, and vertical assault.

In summary, the Army's historical MOUT manuals were offensively oriented and provided tactics, techniques, and procedures for combined arms task forces conducting small-unit operations in built-up areas. Little discussion was given to planning considerations or large-scale operations in urban terrain.

FM 90-10. The US Army manual, FM 90-10, *Military Operations on Urbanized Terrain*, published in 1979, reflects the Army's experiences in World War II and the Korea and Vietnam conflicts. It focuses primarily on the Western European environment and battlefields the Army expected to fight on during the Cold War. The intensity of the conflict, environmental setting, and threat doctrine included in FM 90-10 are all based on a Soviet Union threat in Western Europe. The US Army prepared to fight its next conflict in Western Europe, and the tactics, terrain, and settings used throughout FM 90-10 use Western European terrain for examples and are Soviet threat oriented. The manual specifically describes built-up areas as they typically appear in Western Europe: large and small cities, towns, villages, and industrialized areas. The impact of these types of built-up areas on high-intensity conflict is thoroughly described. Soviet tactics and doctrine for MOUT are also described throughout the manual. American and Soviet doctrine throughout the Cold War assumed that each would fight a high-intensity conflict in Western Europe--one fight that would hinge on the application of overwhelming firepower, both on the plains and in built-up areas. Army MOUT doctrine, as articulated in FM 90-10, much like the Army's capstone manual for the same period, FM 100-5, completely described doctrine for offensive and defensive operations in the central region of Western Europe. Written in 1979, FM 90-10 did not include doctrine for operations short of the total war envisioned in Western Europe. The Soviet Union's dissolution, along with increased US involvement in operations other than war was not envisioned in FM 90-10. The manual was clearly Cold War oriented and did not address the urban environment that US forces operate in today. With these shortcomings in mind, the Combined Arms Center (CAC), under the direction of Training and Doctrine Command

(TRADOC) is currently rewriting FM 90-10 under a new title, "Urban Operations." The expected release date of this manual will coincide with the release of the Army's updated capstone publication, FM 100-5, *Operations*.

FM 90-10-1. *An Infantryman's Guide to Combat in Built-Up Areas*, published in 1995, is the most up to date of the Army's doctrinal publications for MOUT. Written by the US Army Infantry School, this manual is the prescriptive doctrine for infantry battalion and below level MOUT tactics, techniques, and procedures. This manual supplements FM 90-10 by including descriptions of a broad range of urban settings. Additionally, this manual focuses on the conduct of MOUT--down to squad, team, and individual movement techniques. A broader array of likely threat doctrine is included in this manual, not just the Soviet threat as in FM 90-10, but also a discussion on terrorists, guerrillas, and lightly armed militaries. It includes MOUT scenarios across the spectrum of conflict, from high-to-low intensity, and stability and support operations. While this manual aptly describes tactical techniques for infantrymen, it does not go into a discussion of factors crucial to the planning of MOUT; however, it does describe restrictive planning considerations for indirect fire, command and control, combat support, and combat service support activities.

FM 101-5. *Staff Organization and Operations* is the Army's doctrinal reference for staff operations and planning. This manual prescribes the steps of and within the MDMP. It also details how the MDMP should be conducted in a time-constrained environment. The decision-making process described in FM 101-5 includes descriptions of how the MDMP should be conducted in deliberate and time-constrained planning; however, it does not address unique planning considerations for MOUT.

Center for Army Lessons Learned Newsletter No. 95-12: Update (May 1997).

Although not a doctrinal publication per se, this newsletter was meant as a supplement to the 1997 version of FM 101-5. This newsletter consolidates lessons learned at the US Armies combat training centers on the MDMP. This newsletter includes a chapter and appendix, which specifically address the seventeen steps within the mission analysis process. The focus is on the MDMP and does not include specific items to be considered during varying types of operations or terrain.

Center for Army Lessons Learned Newsletter No. 99-16: Urban Combat

Operations. This newsletter contains articles and lessons learned from all facets of urban combat. It includes not only US Army lessons learned, but also includes United States Marine Corps, and Russian doctrine and lessons learned. Articles address each of the battlefield operating systems and range from the strategic reasons for conducting MOUT down to weapons effects and vehicle marking within the urban environment. This newsletter contains tactics, techniques, and procedures, which have yet to be finalized and included in current US Army doctrine.

Marine Corps Warfighting Publication (MCWP) 3-35.3. Marine Corps

Warfighting Publication 3-35.3 is the most current, authoritative, and relevant US military doctrine for MOUT. This manual, published in April 1998, is not only the most up to date of US military doctrinal manuals for MOUT but also thoroughly describes US doctrine for MOUT. This publication includes not only the information provided in the Army's FM 90-10 and FM 90-10-1 and Marine Corps specific MOUT doctrine, but it also describes in detail the contemporary MOUT settings, threat doctrine, and trends. This manual provides guidance for organizing, planning, and conducting the full range of

MOUT. MCWP 3-35.3 was prepared primarily for commanders, staffs, and subordinate leaders down to the squad and fire team level. Although written from a Marine air-ground task force perspective, emphasizing the ground combat element as the most likely supported element in that environment, MCWP 3-35.3 provides a level of detailed information that supports the complexities of planning, preparing for, and executing small-unit combat operations on urbanized terrain, regardless of service. It also provides historical and environmental information that supports planning and training for combat in built-up areas.

Joint Publication (JP) 3-06. The US military's capstone doctrinal publication for MOUT *Doctrine for Joint Urban Operations*, is currently being written by the USMC, with the Army assigned as the technical review authority for the joint publication. This publication is currently in development and expected to be published in early in fiscal year 2001. In recognition of the necessity for joint MOUT doctrine specifically for future joint force commanders, the October 1998 Joint Doctrine Working Party approved a proposal to develop joint doctrine for MOUT. This publication will provide the fundamental principles and doctrine for the conduct of joint and multinational urban operations across the full range of military operations. Additionally, this publication will provide operational-level considerations for Joint Force commanders and staffs. Applicable tactics, techniques, and procedures will be included as specific appendices.

Historical Literature

Aachen, Germany, 1944. Several sources provide detailed accounts of the Battle of Aachen. Irving Westein's, *The Battle for Aachen*, Charles MacDonald's official US

Army history of the European Theater of Operations, *The Siegfried Line Campaign*, and Charles Whiting's book, *Bloody Aachen*, all provide detailed accounts of the actions leading up to and the conduct of the Battle for Aachen. Their books include interviews and quotes from both American and German soldiers, as well as civilians, who either fought in the battle or resided in Aachen during the fighting. Although the books provide thorough descriptions of the fighting in Aachen, none of them specifically describe the US Army decision-making process for the operation. By comparing the historical narratives in these books with Army MOUT doctrine of the time, FM 31-50, the success of the operation can be viewed as a combination of doctrine and initiative.

Manila, Philippines, 1945. The US Army Center of Military History published the official US account of the operations in the Pacific Theater of World War II. Robert R. Smith wrote the official account of the fight for Manila in the text *The War in the Pacific, Triumph in the Philippines*. In the text, Robert R. Smith tells the US Army official account of the events leading up to the battle for Manila, the fight for the city, and the post-battle transition. He utilizes unit histories, combat orders, and memorandums, as well as personal interviews to describe the operations in detail. *Triumph in the Philippines* not only provides an account of the combat operations in the Philippines, but it also includes details of the strategic, operational, and tactical planning that went into preparing for the campaign. The book *The Battle for Manila: The Most Devastating Untold Story of World War II*, written by a former British Army officer Richard Connaughton and two professors at the Royal Military Academy in Sandhurst John Pimlott and Duncan Anderson, emphasizes the effects of the fight for Manila on its civilian population. This book's authors present a relatively undocumented narrative of

the impact of Manila's liberation on its population. Enough battle analysis and graphics are included to allow the reader to understand the causes and effects of noncombatant casualties and the city's destruction. This book provides a different look at the fight for Manila, a perspective not included in the official military histories.

Hue, South Vietnam 1968. Keith Noland's book *The Battle for Hue, Tet 1968*; Eric Hamel's *Fire in the Streets: The Battle for Hue, Tet, 1968*; and the Headquarters of 1st Marines' *Combat Operations After Action Report (Operation Hue City)* provide a detailed account of US action in Hue City. Noland's and Hamel's respective books tell the story of Marine and US Army units in the Battle for Hue. They include numerous interviews with those who fought in the battle, vividly describing the bloody house-to-house fighting in which the Marines fought. These two books, when taken in conjunction with the 1st Marines after-action report, describe the initiative, tactics, and weapons employment techniques that the Marines used during the clearance and final recapture of Hue.

Panama City, Panama, 1989. The Center for Army Lessons Learned (CALL) newsletters, US Army after-action reviews, as well as Edward Flanagan's *Battle for Panama: Inside Operation Just Cause*, Malcolm McConnell's *Just Cause, The Real Story of America's High Tech Invasion of Panama*, and Bob Woodward's *The Commanders* provide insights into the strategic, operational, and tactical aspects involved in the planning, preparation, and conduct of the invasion of Panama. In Woodward's *The Commanders* an in-depth discussion of the planning and decision making for the invasion of Panama is reviewed. His book reviews the different versions of the operational plan for the invasion and when coupled with others sources on the invasion of Panama,

provides a very clear picture of how the invasion was planned. Both Flanagan's and McConnell's books provide detailed accounts of the invasion; yet, the CALL bulletins provide the greatest value for the military reader. As of this writing, the CALL has produced over three volumes of historical accounts and lessons learned from Operation Just Cause in Panama. The CALL publications, taken in conjunction with the historical literature on the invasion, provide not only a broad understanding of the invasion, but lessons learned that might be applied to future operations.

Mogadishu, Somalia, 1993. A review of the literature on American involvement in Somalia, Operation Restore Hope, 1993, is dominated by Mr. Mark Bowden's book *Black Hawk Down*. In his book, he draws upon interviews with participants, combat video, and radio transcripts to tell the story of the Task Force Ranger, on 3-4 October 1993. His book provides a detailed description of the battle, as told by the soldiers who fought in it. *Black Hawk Down*, when taken in conjunction with the Center for Army Lessons Learned bulletins and after-action reviews of Task Force Ranger provides valuable lessons learned and insights into the future of MOUT.

Grozny, Chechnya, 1994-1995. The preponderance of resources available on Russian operations in Grozny have been published by the Foreign Military Studies Office, within the US Army's Combined Arms Center. Articles, such as "Changing Russian Urban Tactics: The Aftermath of the Battle for Grozny" and "The Battle of Grozny: Deadly Classroom for Urban Combat" authored by Lester W. Grau and Timothy L. Thomas, respectively, include not only descriptions of the battle within Grozny, but also analysis of Russian shortcomings and strengths. In these several articles, the authors utilize Russian accounts and lessons learned to support their analysis

of the fighting in Grozny. In a three-part study titled, "The Caucasus Conflict and Russian Security: The Battle for Grozny, 1-26 January 1995," Timothy Thomas describes the roots of the conflict in Chechnya and the outcome of the fighting in Grozny. He is careful to point out that his research is based principally on Russian reports, which may have embellished in order to preserve Russian support for the conflict in Chechnya.

Future MOUT

Studies. The attempt to analyze and predict what the nature of combat will be like in the future may be found in several studies done by the Rand Arroyo Center, the US Army War College and the US Marine Corps Combat Development Command. The three Rand Arroyo Center Studies, *Denying the Widow-Maker*, *Marching under Darkening Skies*, and ". . . We Band of Brothers," by Russell W. Glenn, discuss the level of preparedness of the US Armed Forces for military operations on urbanized terrain. A review of multiservice doctrine and training strategies was also conducted. Additionally, in *Denying the Widow-Maker*, a strategy for a fictional urban fight in Seoul, outlines a proposed future MOUT strategy consisting of two key elements: decisive and facilitating elements. These three studies review the threat and current readiness, and provide recommendations for improvements to doctrine and training. Two publications from the Army War College *Future Warfare* and *America's Army: Preparing for Tomorrow's Security Challenges*, provide descriptions of future strategic threats and advocate the study of urban operations not just at the tactical level but also at the strategic and operational levels. The United States Marine Corps publication *A Concept for Future Military Operations on Urbanized Terrain* addresses the challenges of future MOUT and

explores the urban environment in a maneuver warfare methodology, as opposed to the attrition style of warfare that prevailed throughout the twentieth century.

Summary of Review

A review of historical, doctrinal, and theoretical literature about MOUT shows that much has been written about the tactics, techniques, and procedures that are successful within the urban environment. The urbanization of the world will only increase the likelihood of US troops in armed conflict in urban areas. Planning for these operations must consider the current world environment and the likelihood that rules of engagement will require that collateral damage must be minimized. The next chapter of this thesis will consider the historical, doctrinal, and theoretical characteristics of MOUT and provide an analysis of the trends with respect to the MDMP.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The purpose of this chapter is to outline the methodology used to answer the primary research question, What are the considerations that commanders and staffs must address when conducting mission analysis for combat operations in the future MOUT environment? The primary research question is supported by three secondary research questions.

1. What characteristics define the MOUT environment historically?
2. What threat trends will emerge in the future MOUT environment?
3. What additional factors must a mission analysis include during future MOUT?

These three questions focus the analysis on brigade and division level MOUT operations. The scope of this paper is to answer the research question from the division and brigade perspective so that all of the organic resources, capabilities, and organizations that are often in either direct or general support to combat commanders at the lower level may be included in the analysis.

The three secondary questions develop the historical (case study and doctrine) and future battlefield operating system characteristics of the future MOUT environment, as well as their impact on the mission analysis. The first two secondary research questions are analyzed using the battlefield operating systems of maneuver, fire support, command and control, and intelligence. This study intentionally omits the logistics, air defense, mobility and survivability, and combat service support battlefield operating systems

(BOS) as a means to analyze historical and future MOUT, not because they are insignificant, but because of the limited amount research material available and the scope of this paper. The third research question is answered by taking the battlefield operating system characteristics derived from the first two secondary questions and then applying them to the first ten steps of the mission analysis process.

Historical Characteristics

Defining the historical MOUT environment with case studies on Aachen, Manila, Hue, Panama City, Mogadishu, and Grozny establishes a set of common characteristics for consideration during mission analysis. These six twentieth-century combat operations, although not inclusive of all conflicts involving large scale urban combat, provide a snapshot at the common characteristics of urban combat that have emerged in the last one hundred years. In addition to these case studies, an analysis of past and current US Army MOUT, as well as United States Marine Corps doctrine expands the breadth of analysis possible using the battlefield operating systems.

Threat Trends in Future MOUT

Applying the same battlefield operating system methodology to writings about future MOUT produces a similar set of characteristics for use in mission analysis. There are significantly less books and periodicals published on threat trends in future MOUT, yet those published by the Rand Institute and Army War College provide analysis written from authors who study future warfare routinely. Applying the same BOS to writings on

future MOUT assists in discovering the characteristics that must be considered during the mission analysis process.

Additional Factors during Mission Analysis in Future MOUT

The third research question, What additional factors must a mission analysis include during future MOUT? is answered by taking the BOS characteristics derived from the first two secondary questions and then applying them to the first ten steps of the mission analysis to determine what specific characteristics of MOUT must be taken into consideration during the first ten steps of mission analysis. FM 71-100-2 states that, "The decision-making methodology used to develop and war-game courses of action remains the same (in urban combat), only the factors of Mission, Enemy, Terrain, Time and Troops available change" (United States Army 1993, 8-1). Critical to the conduct of the decision-making methodology is an understanding of the unique characteristics and challenges of fighting and operating on the urban battlefield. This understanding is gained through experience and the in depth analysis conducted during the first step of the MDMP--mission analysis. Only the first ten steps of mission analysis are considered in this study; the remaining steps are outcomes of the analysis and products in these steps 1-10.

The historical characteristics of urban combat and doctrine when combined with an analysis of the future MOUT operations and environment, provides a common set of characteristics to apply to the mission analysis process in determining the answer to the research question.

Strengths and Weaknesses

The strengths of this study are the application of Army doctrinal tools, the battlefield operating systems, to the analysis of military operations on urbanized terrain. Planning and analyzing Army operations in accordance with the BOS is routine and provides a common frame of reference throughout the analysis within this study. An additional strength is the sample of historical case studies for analysis. Aachen and Manila provide examples of urban combat fought in the two distinctly different theaters of World War II. The Battle of Hue, during the Vietnam Conflict, provides an example of urban conflict fought against an armed regular and irregular force in territory that has not been occupied or seized by the opponent. The most recent US experiences in urban combat, Panama and Somalia, provide recent examples of US combat on urbanized terrain. Lastly, the Russian experience in Grozny demonstrates the ability of an irregular force to stymie and defeat a conventional force during urban operations. An additional strength of the methodology is the review of US Army doctrine and documents produced by Rand and the US Army War College.

Although these six historical examples are representative of urban combat throughout the twentieth century, examples such as Seoul, Port-au-Prince, Sarajevo, and Stalingrad are not analyzed because of the time constraints and research material available. Aachen and Manila were corps and division operations in urban areas, fought in both major theaters of war in World War II. The battles for Seoul and Stalingrad, although fought in the Korean War and World War II, respectively, are similar to Aachen and Manila; and an analysis of those battles would have been duplicitous. Combat in Sarajevo and Port-au-Prince is not discussed because the limited nature of combat in

those cities fell outside the scope of this study. Additionally, ongoing operations by the Russians in Grozny, Chechnya (1999-2000), although not the same conflict as discussed in this study, are not included in this study because of a lack of in-depth research and detailed information on the ongoing battles. Finally, only the maneuver, fire support, command and control, and intelligence BOS have been selected for the thesis research and analysis. Excluding the other battlefield operating systems was required because of limited research material, time available, and the necessity of narrowing the scope of the study.

Summary

The conditions of future MOUT require commanders and staffs to examine their traditional methods of operating and look for improved methods of planning and conducting operations. By selecting a representative sample of historical MOUT battles and analyzing them using select BOS, a common set of characteristics of MOUT are established. The review of past and current MOUT doctrine, as well as the works published on the nature of future urban warfare, combine with the case studies to answer the research question, What are the considerations that commanders and staffs must address when conducting mission analysis for combat operations in the future MOUT environment? This methodology could be expanded by reviewing a broader selection of historical case studies and conducting the analysis using all of the battlefield operating systems. However, the resulting analysis provides recommendations and conclusions derived from a methodological process that will assist commanders and staffs in conducting mission analysis for future MOUT.

CHAPTER 4

ANALYSIS

Methodology

This chapter analyzes the battles of Aachen, Manila, Hue, Panama City, Mogadishu, and Grozny in terms of the command and control, intelligence, maneuver, and fire support battlefield operating systems. In conjunction with current and past doctrine and emerging threat trends the analysis of these battles provide characteristics which, when applied to the first ten steps of the mission analysis process provide characteristics for commanders and staffs to consider when planning and preparing for future MOUT.

Historical Analysis

Aachen. The Battle for Aachen, in the fall of 1944, developed during the US First Army's offensive to breach the West Wall fortifications and the Siegfried Line. Aachen, the ancient capital of Charlemagne, had symbolic political and psychological significance to both Germans and Americans. More significantly, it was the first German city to face an assault and subsequent capture by the Allies. This first major battle on German soil foreshadowed tough resistance against the American attackers in subsequent battles. The German defenders surrendered only after their means to resist were gone and the city was destroyed. The fight for Aachen was one of firepower with little regard for collateral damage. Although the US Army achieved a tactical victory, the German defense of Aachen cost the US First Army valuable time and delayed the planned attack to the Rhine

River (Length of battle: 14 - 30 days) (Casualties: 8,000+) (United States Marine Corps 1998, 1-9).

Of the four battlefield operating systems used in the analysis, maneuver and fire support are the most prevalent within the body of research on the Battle of Aachen. The intelligence and command and control battlefield operating systems are not described in detail in the literature available today. On 10 October 1944, the US VII Corps commander Major General J. Lawton Collins issued the following ultimatum to the military commander of Aachen:

The city of Aachen is now completely surrounded by American Forces. If the city is not promptly and completely surrendered unconditionally, the American Army Ground and Air Forces will proceed ruthlessly with air and artillery bombardment to reduce it to submission. Either you surrender the city or face total destruction. (Whiting 1976, 110)

The focus of fire support was to reduce the city to rubble and allow infantry to clear the enemy from the city core. There was no requirement to minimize collateral damage, once the ultimatum had been refused. All means were made available to reduce the city and allow its capture. Within the first hour of the assault on Aachen over 62 tons of bombs were dropped by the Army Air Forces and twelve battalions of US Army artillery fired over 169 tons of ammunition into the city (Whiting 1976, 111). The desired end state for Aachen was complete control of the city, regardless of the damage. The fall of Aachen symbolized the first Allied capture of a city on German soil and was felt to be the start point for the Allied advance to the Rhine. Colonel John F. R. Sietz, the commander of the 1st Infantry Division's 26th Infantry Regiment, had the task of assaulting the city. Colonel Sietz had on hand only two of his three infantry battalions. He had the 3rd Battalion, 26th Infantry secure the high ground overwatching the city of

Aachen, and the 2nd Battalion, 26th Infantry clear Aachen. Lieutenant Colonel Derrill M. Daniel, the commander of 2nd Battalion 26th Infantry, had the task of seizing the city core and clearing all enemy during his advance. Lieutenant Colonel Daniel outlined his simple and focused plan in his oral history report, *Capture of Aachen, Germany, 10-21 October 1944*: "Use artillery and mortar fires across our front to isolate the sector, use direct fire from tanks, tank destroyer, and machineguns to pin down the defenders and chase them into cellars, and then move in with bayonets and hand grenades to destroy or capture the defenders" (Daniel 1947, 8).

Aachen provides an example of fire support and maneuver being unconstrained by collateral damage. The exact disposition of the enemy force within the city of Aachen was estimated at 3,500 by the 1st Infantry Division G-2, although the actual number was closer to 5,000 (Gabel 1992, 164). Aachen was isolated by two infantry divisions, the 30th ID in the north and the 1st ID in the south, before the 26th Infantry Regiment advanced into the city. Colonel Sietz had little information on the disposition and composition of the enemy defending within the city. The scheme of maneuver employed by Colonel Sietz to mitigate his lack of awareness was to destroy the enemy in the areas ahead of his advancing troops with artillery fires and close air support. The overwhelming firepower allowed commanders to develop a detailed scheme of maneuver within the city without the benefits gained from intelligence on the enemy. Command and control was decentralized during execution, but Lieutenant Colonel Daniel used a series of checkpoints within the city, which his attacking forces could not advance past until they had established contact with their adjacent unit. He established these control measures principally to avoid being flanked by the enemy, but also to prevent fratricide

within his battalion. Lieutenant Colonel Daniel organized his battalion using organic, as well as regimental assets, into combined arms teams with the firepower and protection necessary to conduct offensive operations in Aachen. Each rifle company of 2/26th Infantry was task organized with three tanks or tank destroyers, two 57 millimeter antitank guns; two bazooka teams, a flamethrower, and two heavy machineguns. Placing Division and Corps artillery south of Aachen accomplished two things, it misled the enemy as to the infantry axis of advance (26th Infantry attacked from the east) and permitted the artillery to fire parallel to the regiment's advance, permitting effective fires without the risk of short rounds falling on the advancing troops.

This battle provided the following characteristics to be considered during on mission analysis:

1. Intelligence. Prior to the attack of the 26th Infantry into Aachen, the German strength was estimated at approximately 3,500. Upon completion of the fighting it became apparent that the number was closer to 5,000. Although this fact is only one aspect of the US collection effort, it is characteristic of the limited intelligence available prior to attack into the city. Once the attack commenced, US forces queried inhabitants for information and maps.

2. Maneuver. Isolation of the urban area: in order to be effective, must have the necessary combat power. In this case, the use of two infantry divisions to isolate the city, allowed two infantry battalions, outnumbered five to one to achieve victory. Once within the city, the 26th Infantry Regiment established detailed checkpoints for control of the attack.

3. Fire support. The destruction of an urban area may be justified if it is perceived as an enemy decisive point or center of gravity. Unconstrained application of firepower can mitigate risk to friendly forces and make up for intelligence shortcomings by "reducing" the city before maneuver forces attack. In Aachen, artillery forward observers utilized artillery smoke rounds to adjust high explosive rounds into to areas in which enemy were suspected to be fortified. These artillery barrages were intended to attrit the German defenders prior to the infantry attack.

4. Command and control. Despite the unrestricted use of firepower into an urban area, it was necessary for infantry to clear the area systematically, block by block, in close combat urban fighting. This type of decentralized fighting must be centrally controlled to avoid exposing flanks or committing fratricide. Task organizing companies into combined arms teams of infantry, armor and artillery, enables commanders to maximize their combat power, protection, and flexibility during the decentralized MOUT fight.

Manila. The Battle for Manila, as part of the liberation of the Philippines, was a decisive point in freeing the entire Philippine archipelago from Japanese control. General MacArthur was steadfast in his belief that the liberation of the Philippines was a matter of national obligation and political necessity (Smith 1963, 283). The goal of this operation was to seize the city of Manila and destroy or capture the enemy force within it. In 1945, Manila was a modern city--with an ancient walled fortress (Intramuros) and government buildings at its core. Built-up around it were solidly constructed government buildings. At the outset of the American attack on Manila, General MacArthur placed a restriction on the use of indirect fires and air strikes in an effort to minimize collateral damage to the

city of Manila. These fires had to be observed for them to be employed. However, after American casualties started increasing the restriction was lifted for all fires except close air support. The Japanese Army evacuated Manila under pressure from advancing American forces, but the local Japanese naval commander independently decided to hold the city at all costs. Despite defending Manila with poorly trained and equipped personnel, the determined resistance resulted in a high number of casualties to the attacking US forces, as well as the destruction of the city and much of its population. The Manila Defense Force, under the command of Admiral Iwabuchi, established its defense within the city of Manila and fortified existing structures and employed numerous wire obstacles, mines and blockades to canalize the attacking Army. In an effort to preserve human lives, as well as Manila's infrastructure, artillery, mortars and air strikes could only be employed against enemy gun positions. After three days of intense fighting within Manila, the restrictions on artillery and mortar fire were lifted, however the air support restrictions remained in effect. Over those initial three days of fighting, the 148th Infantry Regiment and the 129th Infantry Regiment collectively suffered over 800 casualties. US Infantry Divisions used artillery and air defense weapons in a direct fire role to gain footholds and access into buildings and streets. They used flamethrowers and burning oil to make defenders flee strongpoints and into their engagement areas. Over ten thousand artillery and mortar rounds were fired during the one-hour preparation preceding the assault into the sixteenth century fortress of Intramuros. Within a week of the fall of the Intramuros fortress, the fight for Manila was over. However, this victory was not without cost. During the one the month of fighting (February 1945), the US XIV Corps suffered 6,575 casualties, 3,000 of which came from

the 37th Infantry Division (Smith 1963, 301). The majority of Manila had been destroyed, the infrastructure, which General MacArthur had hoped to preserve, was gone and the historic city center had been obliterated. Perhaps the most damaging fact was that more than 100,000 Filipinos died during the one month of fighting (Smith 1963, 283). This battle demonstrates the capability of a poorly trained defender to inflict high casualties and slow the tempo of a superior force in the attack (Length of battle: 14-30 days) (Casualties: 22,000+) (United States Marine Corps 1998, 17).

This battle provided the following characteristics to be considered during mission analysis:

1. Intelligence. Intelligence concerning the enemy disposition and composition in Manila was meager. Both Sixth Army and XIV Corps had focused all of their planning effort into the amphibious landing at Lingayen Gulf, as a result, it was not until about one week before the fight for Manila proper began that Sixth Army received reports that the Japanese had decided to hold the city (Smith 1963, 249). Most of the intelligence reports available were from guerillas, who were able to assimilate themselves into the population of Manila and remain undetected. These reports were many times so contradictory that it was not until troops closed with a strongpoint that the exact location was known.

2. Maneuver. The presence of nearly one million civilians within Manila necessitated securing key water supply facilities and electrical power installations had significant impact on the tactical planning. Sixth Army directed XIV Corps to seize these facilities early on, as part of the isolation of the city. Rules of Engagement restrictions on the use of fire support assets severely limited commanders' abilities to suppress the

enemy in the urban fight resulting in high friendly casualties. Historically, the US Army has done this only to modify the rules of engagement after the lack of fire support caused heavy casualties to be incurred during the initial fighting. Such was the case in Manila. General Walter Krueger, the Sixth Army Commander, requested that the restriction on close air support be lifted to support the final assault into Intramuros, yet it was denied by General MacArthur. Consequently, XIV Corps had to utilize artillery and mortar fires to support their final attack.

3. Fire support. Unconstrained application of firepower can ultimately prevail against an enemy fortified within an urban area, but not without a high cost in friendly, enemy, and civilian casualties. This type of fighting also destroys the infrastructure, which may cause humanitarian crises either during or after the fighting. After having no success in getting the close air support restriction lifted for the attack on Intramuros, XIV Corps massed the majority of its artillery and mortars for the preparatory fires preceding the attack. Over 11,000 rounds of artillery, mortar and 75-millimeter tank gun ammunition were fired within the twenty-four-hour period preceding the culminating attack into Intramuros. The destruction of an urban area may be justified if it is perceived as an enemy decisive point or center of gravity.

4. Command and control. The fight within Manila was conducted by infantry battalions and cavalry squadrons attacking in zones. These units would attack within their prescribed zone and then upon encountering an enemy strongpoint, isolate it, and then reduce it with artillery and mortar fires and then clear the strongpoint of enemy. This type of attack within the city necessitates control measures that force adjacent units to remain in contact on their flanks. Often time during the fighting in Manila the debris

and rubble would change the physical characteristics of the city so much that preplanned control measures were unrecognizable.

Hue. The Battle of Hue lasted from 31 January 1968 until 26 February 1968. After the North Vietnamese Army (NVA) and Viet Cong (VC) seized much of the city, elements of two Marine Regiments, 1st and 5th Regiments, undertook to systematically clear Hue all NVA/VC within the city, approximately two enemy regiments. During the battle the Marines had two distinct fights: the first in the outer, more modern portion of the city south of the Perfume River and the second in the central city, in the Citadel, an 18th century walled fortress. Hue "was the cultural center of Vietnam, a place of learning, a remembrance of the traditions and values of the past" (Noland 1983, 4). Militarily, Hue was the headquarters of the 1st ARVN Division as well as the intersection of a railroad and Highway One, both of which were critical main supply routes to units operating in the north region of South Vietnam. Additionally, it was a major unloading point for US Navy units moving from the mouth of the Perfume River out to the ocean.

After the NVA/VC attack, Marines from 2nd Battalion, 5th Marines were sent initially to aid in securing the besieged Military Advisory Command compound in Hue. Colonel Stanley Hughes, the Commander of the 1st Marine Regiment, subsequently assumed command of all Marines within Hue, which included 1/1, 1/5, 2/5, elements of 3/5 Marines as well as all of the combat support and combat service support troops.

After receiving his mission brief from Colonel Hughes, Lieutenant Colonel Ernest Cheatham, the Commander of 2/5 Marines, "realized that he had received no training in city fighting since he had been a newly minted second lieutenant preparing to depart for the Korean War" (Hammel 1991, 134). As a result, Lieutenant Colonel Cheatham's

mission analysis consisted of going back to his command post and reading the 1964 version of FM 31-50 *Combat in Fortified and Built-Up Areas*, from which he ascertained that his battalion would require as many 3.5 inch rockets, demolition charges, tear gas, and ammunition as his executive officer could muster. Among Lieutenant Colonel Cheatham's three company commanders and nine platoon leaders there were three maps, all "acquired" from local gas and police stations within Hue. Information on the enemy disposition in Hue was unknown.

Major Robert Thompson, Commander of 1st Battalion, 5th Marines, received a similar mission briefing, which concluded with the Commanding General of Task Force X-Ray saying, "Let me know what's going on when you get there" (Hammel 1991, 256). In an effort to limit the destruction within the ancient city, the Saigon Government had persuaded the Marine Command to restrict the use of fire support, limiting artillery preparations, close air support, and offshore naval gunfire. Fires were limited initially, but then after the casualties began to rise the restrictions were lifted; however, the effectiveness of artillery was limited due to the positioning of the gun target line, which caused the artillery to "fire into the faces" of the advancing Marines.

US Army units from the 101st Airborne and 1st Air Cavalry Divisions moved into position to isolate the Hue, yet, despite the effort to isolate Hue, the NVA were able to "maintain a corridor along the line of the Perfume River from the countryside into the city" enabling them to reinforce themselves with nine additional battalions and maintain a continuous flow of supplies into the city (Dewar 1992, 68). Colonel Hughes assigned battalion objectives and then told his subordinate commanders, "You do it anyway you want, and you get any heat from above, I'll take care of that" (Noland 1983, 43). The

battalion commanders developed task organized company teams, which included, 3.5-inch rockets, 106 millimeter recoilless rockets mounted on small-mechanized wheeled vehicles, tanks, or gun jeeps. Once in contact, the Marines quickly realized the employment of combined arms teams was the key to their success when advancing through Hue.

The Marines fought fiercely through the city unit 26 February 1968, when the city was officially liberated but not without the cost of 147 Marines killed in action and 857 wounded and 384 ARVN killed in action and 1,800 wounded. North Vietnamese Army and Viet Cong casualties were reported as 5,113 killed and 89 captured, as well as 944 civilians killed and 784 wounded. Over 2,815 structures were destroyed within the Citadel. In the 1st Marines After-Action Review of their combat in Hue, the Commander Colonel Stanley S. Hughes stated:

The nature of the terrain and the stubborn "hold at all cost" tactics of the enemy forces introduced a new concept of warfare to the Marines in Vietnam. It took each of the battalion a period of about 24 hours to adjust to these new tactics and determine the most effective method of attack in order to seized their objectives rapidly and with a minimum of friendly casualties. This regiment "rediscovered" the capability of the 3.5 rocket launcher, realizing the difference in bursting radius and penetrating power when compared with the LAAW. The M50 Ontos and M274 mounted 106mm Recoilless Rifle was quickly found to be an effective direct fire weapon against strong buildings housing a determined enemy unit. Artillery was almost employed "danger close" due to the nature of the fighting, and distances from front lines to target were often a hundred yards or less, a similar situation existed with close air support. (United States Marine Corps 1968, 12)

Lieutenant General Cheatham and Lieutenant General Christmas (battalion and company commanders respectively at Hue) in a professional military education symposium in Quantico, emphasized the following points about Hue:

1. Intelligence was absent during the battle.
2. There must be an overall task commander; Hue was fought piecemeal.
3. Apply "enemy" METT-T to the battle it turns the tables and allows you to see the battle as he does.
4. Be prepared to think "outside the box" in urban fighting.
5. Address fatigue; limit night operations to key strikes to gain major objectives.

This battle provided the following characteristics to be considered during on mission analysis:

1. Intelligence. Prior to their arrival in Hue, US Marines had no intelligence of value available to them to assist in their planning. The rapidity and unexpected nature of the NVA and VC attack into Hue can account for a portion of the lack of intelligence, the remainder lies in the inability of the higher headquarters to gather information on Hue because of all the other attacks which had occurred as part of the Tet Offensive. The Army of the Republic of Vietnam Headquarters within the Citadel was able to provide little assistance due to severed communications lines. The fluid and surprise nature of the battle in Hue precluded the acquisition of intelligence in support of the commanders conducting the fight within the city.

2. Maneuver. Isolation of the urban area, in order to be effective, must have the necessary combat power in place before the assault within the urban area. In this case, the isolation force had to position itself after the enemy attacked into the city and could not effectively close off the city prior to attack, resulting in the enemy continuing to reinforce and sustain himself. Infantry, fighting as a combined arms team with armor, and heavy weapons are able clear the area, block by block in close in urban fighting. A

common technique in Hue was for battalion commanders to establish company assault objectives within a zone of attack. Forces could then be massed, with supporting efforts setting the conditions for the main efforts success. The fight below battalion level was often squads and platoons operating in conjunction with heavy weapons and tanks to clear enemy strongpoints.

3. Fire support. Fire support, if permitted, can be used effectively to reduce enemy strongpoints within a city. However, its flat trajectory and the possibility of friendly force disorientation with respect to the gun target line, make it dangerous to employ in close proximity to the infantry fight. Mortars, with their high trajectory are effective in penetrating roofs on the upper floors of buildings. The destruction of an urban area may be justified if it is perceived as an enemy decisive point or center of gravity.

4. Command and control. In Hue there was initially no effective command and control above the battalion level. Marine battalions were piecemealed into the fight, often times with companies cross-attached to different battalions from different regiments. Only after several days of fighting was the 1st Marine Regiment established as the command and control headquarters for the battalions operating in Hue. The regimental commander assigned battalion objectives within the city and then provided the subordinate commanders with the resources necessary (artillery and limited close air support) to accomplish their missions.

Panama City. Operation JUST CAUSE, conducted in December 1989, consisted of conventional and special operations forces conducting tactical operations throughout the country of Panama, to include the capital of the country, Panama City. These

operations ranged from the seizure and destruction of key headquarters and troop concentrations of the Panamanian Defense Forces (PDF) to the capture of Panamanian strongman Manuel Noriega. The seizure of *La Comandancia*, the PDF Headquarters involved a combined arms team of mechanized and light infantry, Rangers, engineers, and other special operations assets to focus combat power at the decisive point of the PDF leadership.

The Commander in Chief of Southern Command, General Maxwell Thurman, directed Lieutenant General Carl Stiner, the XVIII Airborne Corps and Joint Task Force South Commander, to execute Operation JUST CAUSE, formerly known as BLUE SPOON, on 20 December 1989. The plan called for nine task forces to conduct nearly simultaneous assaults throughout Panama. Most of the missions assigned to these task forces required attacks or movements through urban areas, with many taking place inside Panama City (population 600,000). Attacks within the city included the destruction of military garrisons, barracks, and headquarters, seizure of national media stations (radio and television), as well as the national headquarters of the Panamanian Defense Force and the military police headquarters in Colon.

One of the nine task forces, Task Force Gator, had the task of seizing *La Comandancia*. This task force was organized around the Headquarters of 4th Battalion, 6th Infantry Regiment and consisted of two mechanized infantry companies (M113 armored personnel carriers), an airborne infantry company, a M551 Sheridan tank platoon, a USMC Light Armored Vehicle platoon, an engineer platoon, two military police platoons, and a psychological operations loud speaker team. The mechanized companies isolated the objective by seizing key terrain along the routes into and out of *La*

Comandancia and the USMC Light Armored Vehicle and US Army Sheridan tank platoons occupied support by fire positions overwatching the headquarters. Attack helicopters and AC130 Gunships provided precision fires into the objective. An attached company of Rangers and the airborne infantry company entered the compound under the suppressive fire of the tanks and light armored vehicles and cleared the headquarters and remaining buildings.

This operation's focus was on isolating and attacking the enemy decisive point within the urban area. It represented months of rehearsals, which preceded the attack, and very accurate intelligence, which had been collected over the previous year by forces operating within Panama. The US forces isolated key areas within Panama, not the entire urban area. This operation achieved a balance in collateral damage and casualties. In many previous urban conflicts, the US relied upon extensive use of force against an enemy to minimize friendly casualties. In this operation, precision fires, directed against isolated and decisive objectives permitted quick attainment of operational objectives with little cost in human lives. Although this operation was a resounding success, it must be remembered that the US had been operating in Panama for many years and that the intelligence available during the preparation for this attack was optimal.

This battle provided the following characteristics to be considered during mission analysis:

1. Intelligence. US forces had been operating within Panama for most of the twentieth century; as a result, intelligence collection on the Panamanian Defense Force facilities and capabilities was not difficult. Many of the units which participated in JUST CAUSE conducted rehearsals on the actual terrain which they were to use in the invasion.

This operation provides an example of how the fidelity of intelligence can allow for the near flawless execution of a complicated plan.

2. Maneuver. The attack at *La Commandancia* demonstrated that combined arms teams could effectively conduct local isolation of an objective within an urban area. This results in an economy of force operation within the overall concept of the operation. Combined arms teams are most effective in the seizure and retention of a key facility or in the destruction of a specific enemy force. Local isolation of an objective within an urban area must not only isolate the objective with respect to the enemy, but it must also isolate the objective from the local populace to prevent unnecessary civilian casualties or interference.

3. Fire support. Precision fires (attack aviation, artillery, and close air support), directed against an isolated objective, can minimize friendly casualties during the clearance of the objective. The bulk of fire support within this operation was provided by AC-130 Gunships and attack aviation. These systems were able to place responsive precision fires onto targets that had been isolated by ground forces. These assets were able to be employed successfully for two principal reasons: target intelligence and lack of an air defense threat.

4. Command and control. The nine task forces conducting the initial seizure of assault objectives on D-day had all rehearsed their operations over the preceding two to three months. This complex contingency mission involved many units deploying from the Continental United States directly into combat. All of these units were able to emplace command and control advance parties on the ground in Panama prior to the invasion. These teams assisted in synchronizing the operation with Joint Task Force

South. Enroute satellite communications allowed task force commanders coming from the US to receive final intelligence updates prior to H-hour. Once on the ground, the task forces conducted their distinct missions reporting completion to Joint Task Force South as necessary.

Mogadishu. Task Force Ranger was made up of special operations ground forces, special operations helicopters, Air Force Special tactics personnel, and SEALs. Prior to the Battle of 3-4 October 1993, Task Force Ranger had conducted six successful raids aimed at reducing warlord Mohamed Farrah Aidid and the Habr Gidr Clan's ability to interfere and disrupt humanitarian operations within Somalia (Bowden 1999, 4). The Task Force Ranger raid on 3 October 1993 was a daylight raid focused on capturing two of Aidid's top lieutenants. The plan for this raid was similar to the six previous: an assault force would insert by helicopter while simultaneously a blocking force would isolate the objective. Once the mission was complete, a ground convoy would move forward and link up with the force and evacuate it from the target. Although the warlord leader Mohammed Farrah Aidid remained free, the cumulative effect of these missions decreased his capability to control his faction, as many of his key leaders had been captured during these missions. On 3 October 1993, Task Force Ranger launched its seventh mission, this time into Aidid's stronghold to capture several of his key lieutenants. Helicopters, carrying assault and blocking forces, lifted off from the Ranger compound at Mogadishu Airport, with a ground convoy departing near simultaneously. Within fifteen minutes after lift-off, the ground forces were at the target location, with the blocking force setting up perimeter positions and the assault force searching the compound for Aidid's supporters. These forces came under increasingly heavy enemy

fire, more intense than during previous raids. The assault team had captured twenty-four Somalis and was about to load them onto the ground extraction trucks when a Blackhawk helicopter was shot down by a rocket-propelled grenade and crashed about three blocks from the target location. During efforts to secure the crash sites, members of Task Force Ranger became isolated and fixed by the large angry crowds of Somalis. Command and control helicopters tried to direct ground relief convoys around obstacles and pockets of resistance, but three separate attempts by ground convoys to reach the sites failed because of intense fire and obstacles in their paths. Armored vehicles and AC-130 gunships had previously been requested to prevent a situation like this from happening, but had been turned down by the US Secretary of Defense as undermining to the political attempts to end the crisis. Fire support for this operation was limited to attack helicopters, which were forced to operate in close, in order to acquire and engage targets. Finally, seven hours after the start of the operation a relief column of four Pakistani tanks and thirty-two Malaysian armored personnel carriers, carrying members of the Quick Reaction Force departed to recover the elements of Task Force Ranger isolated in Mogadishu. Fourteen hours after the battle started all forces were returned to the Pakistani Compound. Major General William Garrison, Commander of Task Force Ranger in a note to the President of the United States explained the valiant actions of the men of Task Force Ranger and recounted, "The mission was a success. Targeted individuals were captured and extracted from the target" (Bowden 1999, 338). Thus, ended one of the bloodiest and fiercest firefights since the Vietnam War. Task Force Ranger had more than held its own against a battle hardened enemy with superior numbers, however, not without the cost of

American lives and strategic political repercussions. (Length of battle: 14 hours)

(Casualties: US Army, 18; Somali's, 600+) (Bowden 1999, 289-290).

This battle provided the following characteristics to be considered during mission analysis:

1. Intelligence. Intelligence shortcomings in Mogadishu were a continual source of frustration and wasted effort. Numerous times, Somalis spies for Task Force Ranger would report Aidid's location, only to have the account disproved through the use of OH-58 observation helicopters or P3 Orion reconnaissance planes. Human intelligence collection within Mogadishu proved difficult due to physical and linguistic differences. Intelligence collected by national agencies, was forwarded back to Washington D.C. before it was made available to Task Force Ranger. This caused untimely delays as well as the necessity for Task Force Ranger to develop its own set of human intelligence collectors.

2. Maneuver. The convoy that came to relief of Task Force Ranger consisted of tanks and armored personnel carrier. This combined arms team possessed the necessary firepower and protection to mitigate the risk when evacuating the force from downtown Mogadishu. Forces isolating an objective within an urban area must possess sufficient combat power to fight off and protect against the enemy's most dangerous course of action, as well as extract themselves should their method of extraction become unavailable.

3. Fire support. Attack helicopters, operating over urban terrain, can bring effective fires to bear, however, they are at a significant risk to small arms and anti-aircraft fire. According to the Somali Warlord, Mohamed Farah Aidid, they were the

American "center of gravity." AC-130 Gunships, requested for this operation, but not permitted, provide a precision overhead fire support platform that would have been capable in delivering responsive fires to Task Force Ranger.

4. Command and control. During the operation and follow on extraction of Task Force Ranger, both a command and control helicopter and a Navy P3 Orion spy plane were above the city. The Navy plane could observe the area in its entirety, however, it had to relay its information back to the joint operations center, which would then send the information back out to the command and control helicopter. The delay that this procedure took often caused the relief convoy to miss key turns when trying to get to the crash sites. Additionally, command and control for objectives within urban areas must include a concept of operation for quick reaction forces as well as control measures for their employment.

Grozny. A primary focus of Russian operations in Chechnya was the capture of the capital city, Grozny. The battle for Grozny (population 490,000), Chechnya began in January 1995 and placed an unprepared Russian Army against a heavily armed Chechen regular and irregular force. The fight lasted three weeks, before the Russian forces controlled the city. A mechanized force of 6,000 troops mounted in tanks, infantry fighting vehicles, and armored personnel carriers conducted the initial attack on Grozny. The Russians anticipated light opposition, but instead met a determined and heavy resistance from Chechens armed with a large number of crew served and individually fired antitank weapons. The first Russian unit to enter the city center, the Maikop Brigade consisted of 1,000 soldiers. In three days of fighting, the brigade lost nearly 800 men, 20 of 26 tanks, and 102 of 120 armored vehicles (Thomas 1999, 2). After this,

Russian artillery fired continuously for twenty days, sometimes at a rate of 4,000 rounds and hour (Thomas 1999, 2). A second mechanized attack conducted on New Year's Eve, 1994, was also repulsed with the loss of 140 of 200 tanks employed. Russian intelligence missed the Chechen construction of a defense in depth throughout Grozny. As Russian columns moved into the heart of the city, they encountered obstacles, roadblocks and snipers. These tell-tale signs of determined resistance did not daunt the Russians as they continued their attack into Grozny's center. The Russian forces moved along three isolated and mutually unsupporting columns (Finch 1998, 6). This movement technique, isolated the Russians within the city, and consequently they were unable to draw upon adjacent units' strengths or supporting fires. As the fighting progressed, the Russians secured key terrain, but were never able to completely isolate the city. As a result, Chechen forces returned during darkness and continued to harass and kill the Russians. The Russians were able to capture Grozny some two months later, but only through the use of excessive, overwhelming firepower directed at the city proper, and at a great cost to themselves in casualties as well as to the local Chechen population. The fight continued until 20 January, when the Russian forces recaptured the city center and raised the Russian flag over the Presidential Palace. The capture of Grozny marked the end of the first phase of Russian combat operations in Chechnya. Beginning in March 1995, the Russians became heavily engaged in anti-partisan operations as they tried to gain control of the country. Though they controlled several major Chechen cities and a portion of the countryside by May 1995, they were never able to fully isolate the Republic. Chechen separatist fighters continued to receive a steady flow of arms and supplies from neighboring countries. Consequently, the Chechen fighters were able to maintain the

initiative throughout this period, engaging Russian forces whenever and wherever they chose. Even late in the campaign, Russian intelligence failed to detect Chechen fighters infiltrating Grozny, which enabled the Chechens to launch a major attack against the Russian-controlled city in early August 1996. The Chechens succeeded in capturing the city less than two weeks later (length of battle: 10 to 11 months) (Casualties: Russian, 800+; others, 5000+) (Grau and Kipp 1999, 9-17).

This battle provided the following characteristics to be considered during mission analysis:

1. Intelligence. The Russians did their initial planning using 1:50,000 and 1:100,000 maps (Grau 1995, 3). They lacked larger-scale maps essential to planning operations in MOUT. Aerial photographs and current satellite intelligence was unavailable because satellites had been turned off in cost-saving measures. As Russian units approached the city, they encountered snipers, roadblocks, and other obstacles that were the signs of Chechen determination within Grozny. Now as a planning tool, the Russians identify those structures, such as industrial plants, which offer the defender a location to conduct a lengthy, stubborn defense. These facilities and structures then become their initial objectives.

2. Maneuver. The destruction of an urban area may be justified if it is perceived as an enemy decisive point or center of gravity. Prior to Grozny, Russian urban maneuver doctrine specified that tank would lead into the city followed by infantry fighting vehicles and the dismounted infantry. This technique proved ineffective in Grozny, where the large numbers of antitank weapons were a threat to armor. The Russians developed a technique of organizing tanks and infantry fighting vehicles into an

armored group, tasked with sealing off captured areas, serving as a counterattack force, providing security for rear areas, and supporting infantry attacks from outside the range of enemy antitank weapon range (Grau 1995, 4). As the Chechens fielded anti-armor teams, the Russians utilized infantry to ambush the Chechens attempting to position themselves for antiarmor ambushes.

3. Fire support. The Russians used their artillery in its traditional role during the approach to the city; however, once within Grozny, they utilized their self-propelled artillery in the direct fire role in support of armor and infantry attacks. They utilized their artillery in the direct fire role to preclude massed indirect fires from creating rubble in the paths of their advancing forces.

4. Command and control. Little has been written about Russian command and control in Grozny, other than that the invasion force was unprepared for combat. The forces gathered consisted of regular army and interior defense troop, both of which possessed neither the training nor equipment necessary for the invasion. Internal Russian politics often issued contradictory orders or defined operational objectives based on certain dates (e.g., in time for the fiftieth anniversary of the end of World War II in May 1995; before President Yeltsin's visit to the G-7 summit, etc.) (Finch 1998, 6).

Doctrinal Analysis

United States Army doctrine for urban warfare is replete with tactics, techniques, and procedures for company and below operations in urban areas. As discussed in chapter 2, "Literature Review," much of the doctrine is dated and is focused almost specifically on a Western European battlefield. Field Manual 71-100-2, *Infantry Division*

Operations, briefly outlines what commanders and staffs should consider the following when conducting mission analysis for MOUT:

1. Different intelligence preparation of the battlefield (IPB) requirements.
 - a) Information on underground passages, water supplies, and electrical power generation and distribution systems.
 - b) City maps and aerial photographs which denote building heights, overhead obstacles, bridges, hospitals, and special purpose buildings
 - c) Detailed building and bridge analysis.
 - d) Grid or area shutoffs for power, water, gas, and other utilities.
 - e) Information on factories which might impact on operations.
 - f) Information on communications systems which might aid friendly command and control or deny the enemy the ability to rapidly disseminate information.
 - g) Information on local civil authorities, political leaders, and the population.
2. Special Command and Control Requirements.
 - a) Centralized Planning and decentralized execution.
 - b) Utilization of all existing communication systems to overcome the interference of urban structures and the isolation of urban fighting
 - c) Unmanned aerial vehicles and sensors may also provide commanders with increased situational awareness.
3. Unique Task Organization Requirements.

In addition to the formation of combined arms teams, commanders should consider the attachment of civil affairs or psychological operations teams to subordinate units so that their capabilities may be expanded.

4. Fire Support Capabilities and limitations.

- a) Man-made structures often mask effective fire support in cities. Positioning of direct support artillery may be limited to parks, athletic fields or be positioned outside the city to provide massed fires into the city or along an avenue of approach.
- b) Direct fire from artillery may be used to reduce strongpoints.
- c) A standardized marking system must be used to call for fires within the city so that fratricide or damage to restrictive fire areas is precluded.
- d) Depending on the air defense artillery threat, attack helicopters may be used effectively to bring precise fires into the urban area or may be used to isolate the city and interdict enemy forces along avenue of approach leading up to the city.

5. Weapons effectiveness. Commanders must give special consideration to weapons effectiveness when assigning task organizations. Some infantry weapon systems are not effective within urban areas due to minimum arming distances. Tank rounds do not make good entry point holes but are good at eliminating point targets. Time and proximity fuses are effective in using artillery against enemy on rooftops or behind barricades.

6. Special considerations for health service and logistics support. Increased demand for ammunition will require logistics convoys to operate within the urban area. Casualties will have to be evacuated along lines of communication that are not free from enemy harassing fires.

7. Special equipment for urban operations. Divisions may require additional small arms ammunition and equipment. Due to the difficulty in command and control within an

urban area, additional communications equipment may be required to effectively operate within urban areas.

8. Control measures.

- a) Frontages and zones of action
- b) Boundaries
- c) Checkpoints and contact points
- d) Phase lines
- e) Objectives

The manual lists the following as "proven techniques" for conducting offensive MOUT operations:

1. Attack a built-up area only as the last resort, and only when a major advantage accrues through its seizure or control
2. Know the characteristics of urbanized terrain and advantages and disadvantages it offers to either attacker or defender
3. Attack where the enemy is weak--hit his flanks and rear simultaneously
4. Require detailed planning by subordinate commanders to enhance decentralized execution and minimize command and control problems during the attack.

The discussion in FM 71-100-2, provides a starting point for examination of mission analysis during MOUT. The similarity of the doctrine outlined in FM 71-100-2 and the techniques used during the battle of Aachen by the US VII Corps are nearly exact. Operation Just Cause as well as operations by Task Force Ranger in Somalia

suggest that economy of force missions in urban terrain require different planning considerations base on future threat trends.

Future MOUT Analysis

The traditional method of attacking urban areas has been to isolate the city from the surrounding countryside and then systematically clear the city, block by block, of pockets of enemy resistance. Often time's firepower was used to overwhelm a stubborn enemy, producing not only high-collateral damage, but a large number of noncombatant injuries as well. Currently, many urban areas are so large that they preclude the traditional method of attack. Shanghai, for instance, contains over 125 million people and 2,383 square miles, and a police force the size of the US Marine Corps (Grau and Kipp 1999, 12).

Several recent concepts such as urban penetration, urban thrust, and urban swarm suggest that alternatives may be possible for future MOUT. One concept is called urban penetration, in which an attacking force penetrates along multiple axes to isolate and seize a key objective. This approach works primarily against terrain oriented objectives as opposed to force-oriented objectives. In Grozny, the Russians moved along multiple axis to seize key objectives, like the Presidential Palace, the railroad station, and the radio/television center, yet the Chechens denied them decisive engagement and as a result the Chechen force was able to interdict the Russian lines of communication, while the Russians held there key objectives (Grau and Kipp 1999, 13).

Another recent method of attack in an urban area is called the urban thrust. This method emphasizes a synchronized attack along a narrow axis that frequently changes

direction to confuse the enemy and keep him from massing his combat power.

Unfortunately, if the urban thrust technique is not well coordinated and executed the exact opposite comes true--the friendly force becomes confused and unable to mass its combat power.

The urban swarm method of attack is more appropriate to low intensity conflict than the high intensity operations of Grozny. This technique places a large number of small units on patrol within assigned sectors and which then move to and mass against pockets of enemy resistance. Complications with command and control, as well as the limited speed of movement in an urban environment make this technique difficult to execute in all but the most benign types of urban combat.

Lastly, another approach suggested is the "Indirect Approach." In, *Future Warfare*, Major General Robert Scales proposes that in future urban combat that the US or coalition establish a loose cordon around the city and control the surrounding countryside, isolating the urban area from the outside world. Then the coalition gains control of sources of food, water, and sanitation. Finally, using nonlethal methods, attack the city's information sources, media, commercial, financial and government functions, while allowing only coalition information to reach the populace. Selected point targets would be engaged using precision weapons, maximizing the standoff advantages. Finally, the population would either turn against the defenders or leave the city to seek vital supplies in the sanctuaries established by the coalition. Eventually the city would become an area unsuitable for the defender to achieve his purpose. Without popular support or the supplies to resist, the defender would be forced to submit to the coalition.

Urban penetration, urban thrust, urban swarm, and the “indirect approach” are all proposed forms of urban maneuver, which, have not yet found their way into the US Army doctrine. These approaches, although not without merit, must be doctrinally developed to be seen as viable forms of offense in urban terrain.

Summary of Analysis

The preceding chapters have provided historical, doctrinal, and theoretical descriptions of urban combat, organized along the battlefield operating systems of maneuver, fire support, intelligence, and command and control and focused at the brigade- and division-level considerations and not at the tactics, techniques, and procedures of small units. Based on these studies, one can conclude that fighting in urban terrain is more than just another environment that military operations are conducted in. Rather it is an environment that requires planning considerations and methods of maneuver that are significantly different than the open battlefields of Western Europe or Southwest Asia. Mission analysis, the critical initial step of the military decision making process requires an in depth look at enemy and friendly capabilities and constraints, as well as a detailed intelligence preparation of the battlefield. Based on the historical, doctrinal, and theoretical review in this paper the following is proposed as a list of the considerations that must be taken into account when conducting the first ten steps of mission analysis for the urban battlefield. This lists follows the format of the mission analysis process as outlined in FM 101-5.

I. Analyze the Higher Headquarters Order. It remains absolutely essential to understand the task and purpose at hand. Urban areas in which no essential tasks must be

accomplished should be isolated utilizing only sufficient resources to ensure that the urban area cannot adversely affect the outcome the mission. Possession or control of an urban area must be placed be nested in the context of the larger operation in terms of its overall purpose. Once the commander has determined that an essential task can only be accomplished within an urban area, and its purpose, he must specify the type of tactical operation required. Specifically, the commander must consider during mission analysis the level of clearance required and its necessity to the overall purpose. Commanders and planners should ask themselves the following questions:

- A. Do I need to clear every building?
- B. Should I clear only certain blocks?
- C. Should I only control certain areas?
- D. What level of protection is required for my lines of communication?
- E. What are the information operation objectives?
- F. What are the operational objectives?

II. Conduct initial intelligence preparation of the battlefield (IPB).

A. Define the battlefield environment. When defining the battlefield environment during mission analysis significant characteristics of the environment that influence the commander decisions and course of action development must be highlighted. These characteristics may include: zoned areas and patterns, lines of communication, urban patterns, pattern effects, street patterns, structural types, population demographics, political or socio-economic factor. Political and socio-economical factors may include: key infrastructures, rules of engagement or legal restrictions as outlined in international agreements or laws, threat forces and their

capabilities in general terms. If planning for operations in an unfamiliar area, it is important to define for the commander the operational environment as permissive, uncertain, or hostile.

1. Permissive environment. An operational environment in which host country military and law enforcement agencies have control and the intent and capability to assist operations that a unit intends to conduct (US Army 1997, 1-114).

2. Uncertain environment. An operational environment in which host government forces, whether opposed to or receptive to operations that a unit intends to conduct, do not have totally effective control of the territory and population in the intended area of operations (US Army 1997, 1-114).

3. Hostile environment. An operational environment in which hostile forces have control and the intent and capability to effectively oppose or react to the operations a unit intends to conduct (US Army 1997, 1-114).

B. Identify the limits of the area of operations and battle space. In identifying the limits of the area of operations is important to consider the effects that will be created within it. The closeness of the urban battle may cause battlefield effects to intrude into another unit's area of operations. Defining a command's battle space is determined by the maximum capabilities of the unit to acquire and physically dominate the threat within a specific area. In an urban environment, the command's battle space could potentially be significantly smaller than its area of operations. This analysis provides the commander with key information that may play a part in his guidance to the staff.

C. Establish the limits of the area of interest. The limits of the area of interest are based on threats to mission accomplishment. In urban areas, the area of interest could

include areas where threat forces are able to interdict lines of communication or avenues of approach (air and ground). Additionally, the area of interest should include areas from which the threat could reinforce or resupply its forces engaged in the urban fight.

D. Identify the amount of detail required and feasible within time available for IPB. Specific objectives, routes and structures within an urban area will require specific details for planning. Blue prints, architectural designs and city planning documents can all become part of the tools required to conduct the IPB.

E. Evaluate databases and identify intelligence gaps. This step of the initial IPB is intended to not only identify shortcomings in existing data, but also to create intelligence requirements that may be answered another headquarters or intelligence agency. Requests for information established early on in the mission analysis process allow National Intelligence Support Teams to query human intelligence networks for answers to intelligence shortcomings.

F. Collect the material and intelligence to conduct the remainder of the IPB. City maps, satellite images, communication intercepts as well as human intelligence reports may be products collected for use in the IPB. This step of the initial IPB consists of the collection, processing and subsequent analysis of existing intelligence products. Shortcomings not previously identified should be incorporated into the collection plan or submitted as a request for information.

G. Define battlefield effects.

1. Terrain. Offensive operations should be tailored to the urban environment based on a detailed analysis of urbanized terrain. Commanders and subordinate leaders use observation and fields of fire, cover and concealment, obstacles, key terrain, and avenues of approach to identify important terrain factors:

a. O: Observation and Fields of Fire. Urbanized terrain is characterized by restricted observation and limited fields of fire. Weapon ranges can be greatly reduced because of buildings and other manmade structures. On the other hand, high ground or tall buildings can provide perches, which enhance line of sight for observation and communications as well as for individual and crew-served weapons. This includes man-portable surface-to-air missiles.

b. C: Cover and Concealment. Buildings, sewers, and subways can provide excellent cover and concealment for enemy and friendly forces. They also provide covered and/or concealed maneuver routes within the built-up area. The civilian population can also offer cover and conceal enemy forces.

c. O: Obstacles. Natural or manmade obstacles restrict or deny maneuver within the urban area. Bridges, walls/fences, canals, streams, rivers, as well as rubble created by the effects of weapons should be thoroughly analyzed. Construction sites and commercial operations such as lumberyards, brickyards, steelyards, and railroad maintenance yards are primary sources of obstacle and barrier construction materials.

d. K: Key Terrain. Key terrain surrounding an urban area can facilitate entry or deny escape. Within the city, airports or airfields, stadiums, parks, sports fields, school playgrounds, public buildings, road junctions, bridges, or industrial

facilities may be key terrain. Critical public buildings are identified during the terrain-analysis phase of an IPB. Hospitals, clinics, and surgical facilities are important because the laws of war prohibit their attack when not being used for military purposes other than medical support. The locations of civil defense, air raid shelters, and food supplies are critical in dealing with civilian affairs. Additionally, population size, locations, and density; density of the built-up area; firefighting capabilities; the location of hazardous materials; police and security capabilities; civil evacuation plans; and key public buildings should be identified.

e. A: Avenues of Approach. Avenues to the city should support maneuver and be concealed either by terrain, darkness, smoke, or a combination of the three. Avenues that canalize or choke maneuver, due to the density of built-up area or natural terrain, should be identified and avoided. Roads, rivers, streams, and bridges provide high-speed avenues for movement. Generally, military maps do not provide enough detail for urbanized terrain analysis. They usually do not show the underground sewer system, subways, underground water system, mass transit routes, and power plants. Local maps of intercity road networks and subway systems and city hall/department of public works blueprints of all city buildings (if available), coupled with aerial photos, should be used.

2. Weather. As in any military operation, weather affects equipment, terrain, and visibility, but its greatest impact is on the individual soldier. Snow, ice, dust, wind, rain, humidity, and temperature extremes reduce human efficiency and require greater physical exertion to overcome. Weather extremes coupled with stress and the physical strain of urban combat can be minimized with effective small-unit leadership.

The United States Marine Corps Warfighting Publication 3-35.3 describes the following weather factors:

a. Precipitation. Rain or melting snow may flood basements and subway systems. This is especially true when automatic pumping facilities that normally handle rising water are deprived of power. Flooding makes storm and other sewer systems hazardous or impassable. In a nuclear, biological, and chemical environment, chemical agents can be washed into underground systems by precipitation. As a result, these systems may contain chemical agent concentrations that are much higher than surface areas and thus become contaminated "hot spots." Hot spot effects become more pronounced as agents are absorbed by brick or unsealed concrete sewer walls.

b. Fog. Many major cities experience fog, especially those located in low-lying areas and along canals or rivers. Industrial and transportation areas are the most likely to be affected by fog because of their proximity to waterways. Fog adversely affects vision and optical aids. It may also be used to help conceal friendly movement.

c. Inversion Layers. Air inversion layers are common over cities, especially cities located in low-lying "bowls" or in river valleys. Inversion layers trap dust, smoke, chemical agents, and other pollutants, reducing visibility and often creating a greenhouse effect, which raises ground and air temperatures.

d. Temperature. Built-up areas are often warmer than surrounding open areas during both summer and winter. This difference can be as great as ten to twenty degrees hotter throughout the year.

e. Wind Effects. Generally, wind chill is not as pronounced in built-up areas. However, the configuration of streets, especially in the city core and

outlying high-rise areas, can cause wind tunneling. This increases the effects of the wind along streets that parallel the wind direction, while cross-streets remain relatively well protected. Wind tunneling can have a negative impact on aviation support within the urbanized area by creating dangerous wind effects down streets and between buildings.

f. Day/Night Differences. Night and periods of reduced visibility favor surprise, which in turn, may facilitate infiltration, detailed reconnaissance, attacks across open areas, seizure of defended strongpoints, and reduction of defended obstacles. Because of the difficulties of night navigation in restrictive terrain (usually without reference points and in close proximity to the enemy) forces may consider using simple maneuver plans with easily recognizable objectives. Rotary-wing aircraft are best utilized at night when operating on urbanized terrain. The most effective method of protecting helicopters from a successful engagement by hostile ground forces is to remain unseen. During night flights, the use of night vision goggles should be weighed carefully. Artificial lights can render night vision goggles partially ineffective and can increase the possibility of mid-air collisions by degrading the goggles to the point where nearby aircraft and aerial obstructions are not seen.

g. Aviation Weather Considerations. Weather conditions can be a critical factor in determining the amount of aviation support the aviation combat element can provide in an urbanized area. Aviation forces should consider the following:

(1) Presence or absence of fog, industrial haze, low clouds, heavy rain, and other factors that limit visibility for pilots.

(2) Illumination and moon phase and angle during night vision goggle operations.

(3) Ice, sleet, and freezing rain that degrade aerodynamic efficiency.

(4) Updrafts and downdrafts in the urban canyon that may present an unpredictable hazard.

(5) High temperatures and/or high-density altitudes that degrade aircraft engine performance and lift capability.

(6) High winds and crosswinds, to include the tunneling effect, that may create localized and unpredictable hazards to aviation.

(7) Weather conditions that create hazards on pick-up and landing zones, such as blowing dust, sand, or snow.

H. Evaluate the Threat.

1. Conventional Forces. Most potential adversaries have adopted techniques of urban combat from either the United States or the former Soviet Union. Therefore, potential adversaries will build their urban defense to counter the attack of a combined arms task force or team and organize their defense in depth along major roads or key intersections. Prepared strongpoints can be expected to form the perimeter of a larger defense while reserves locate in a separate position within the perimeter. Ambushes may be employed to fill gaps in the perimeter, and fake strongpoints are established to deceive the attacker. Defensive positions for securing the entrances to and exits from underground structures and routes are normally established. Security positions will normally be located forward of first-echelon defensive positions. Enemy reconnaissance and surveillance elements may be positioned in tall structures or along overpasses and highway interchanges.

2. Unconventional Forces. Urban areas have become a haven for unconventional forces. The large noncombatant population provides cover and concealment for unconventional force operations. Conventional forces operating in MOUT should anticipate being placed under restrictive rules of engagement to minimize collateral damage to infrastructure. Unconventional forces will often use our restrictive rules of engagement and the noncombatant population to their advantage when devising an urban defense. The unconventional force should be expected to establish a battle of attrition, using ambushes to slow the attackers tempo and create casualties.

III. Determine specified, implied, and essential tasks.

A. Specified Tasks. Although specified tasks within the higher headquarters order will define the units mission which may include an urban area, the overall purpose of the operation will determine the necessity of operating in an urban area and what type of tactical mission should be conducted. It is imperative that an analysis of troops to task be done to ascertain the feasibility of the specified tasks. The following is a sample list of tasks that could be assigned during urban combat operations: block, clear, contain, defeat, destroy, fix, isolate and seize. Based on their doctrinal definitions they all require different amounts of combat power and drive the overall scheme of maneuver.

B. Implied Tasks. The implied tasks possible during urban combat are as innumerable as those in an open-warfare environment; however, the effect of task accomplishment or failure could be greatly magnified when operating in urban areas. Although the specified task may be to clear or destroy an enemy within an urban area, essential to accomplishing that is to isolate the area and transition from an offensive to defensive posture.

1. Isolation. During offensive MOUT, successful isolation virtually ensures success and often becomes a decisive factor. Isolation is achieved through a variety of forms including the use of lethal and nonlethal fires, information operations, and maneuver. In offensive operations, the aim is to isolate threat forces within the urban area into mutually unsupporting elements and then defeat him in detail. Simultaneously, the urban area is isolated from reinforcing enemy forces and influences outside of the urban area. Historically the attacker has won all urban battles where the defender was totally isolated. Even partial isolation of the defenders has resulted in attackers enjoying a success rate of 80 percent. Conversely, attackers won only 50 percent of the battles in which defenders were not significantly isolated, and those victories came at great cost. No single factor is more important to the attacker's success than isolation of the urban area. The key to the attacker's success is in stemming the unimpeded flow of manpower, supplies, and weapons to replace the defender's losses.

2. Transition. When planning for MOUT, commanders must ensure they plan for transitions. Transitions are movements from one phase of an operation to another in which significant changes are involved, in mission, situation, task organization, forces, support arrangements, or command and control. During MOUT, the necessity of planning and conducting transitions is critical. For example, an attack, once complete, may transition to either a hasty or deliberate defense, or to a change in focus from offensive operations, to stability and support operations.

C. Essential Tasks. Those tasks that must be executed to accomplish the mission. These tasks are dependent on the combined list of specified and implied tasks.

Isolation, although maybe not a specified task, could be considered one of several essential tasks during urban operations.

IV. Review Available Assets. The commander must be aware of all of his combat power (e.g., types of weapons systems, their numbers, and their capabilities) when performing analysis for operations in a built-up area. The commander's goal is to determine how to use the available forces most effectively to achieve mission success with the least risk. However, because of the complex nature of the urban environment, particularly its human aspect, the risks associated with courses of action may not always be simply calculated in material, or friendly casualties. Costs to the mission may also be reckoned in civilian casualties, collateral damage, and in less tangible terms such as prestige, legitimacy, international good will, or support of the local population. According to a 1983 US Army Research Institute Survey, offensive MOUT "requires eight or nine times more manpower for operational equality" (United State Army Research Institute 1983, 4). In the initial planning phase, force size must be evaluated in relation to urban size, enemy forces, and mission assignment. US Army doctrine for Infantry Division operations specifies that an attacking infantry brigade should be assigned a frontage of six to twelve blocks with a significant reserve well forward (US Army, 1993, 8-4). In the attack of a built-up area (population 100,000+), the USMC would use a Marine division (United States Marine Corps 1998, 2-7). However, in the initial stages of an urban operation, a reinforced infantry battalion or brigade may provide the initial forces to seize or secure a foothold in the area of operations. No matter what the size of the force, operations will be conducted by task-organized, reinforced battalions and their companies and platoons. Therefore, by using the infantry battalion as

the basis for projecting the size of an overall force, the number of brigades or divisions required to secure a built-up area can be determined. Whatever size Army force conducts operations in an urbanized area, much of the fighting will generally be conducted by small units. Consequently, success in urban fighting may largely depend upon small unit and individual tactical skills. In addition to maneuver, the commander has other capabilities available with which to shape the urban battlefield in favor of tactical success. These include task organizing committed units properly, focusing reconnaissance and surveillance assets on the urban area, employing special operating forces either in a reconnaissance role or for surgical direct action, and conducting information operations to isolate the enemy electronically as well as physically.

Weighting a force with cannon artillery systems and precision munitions is an example of setting the conditions of urban combat through proper task organization and combat service support priorities. The commander can also assist the subordinate commander by limiting the number of tasks he assigns. For example, a commander can consolidate media control and civil military operations at his level, thus relieving a subordinate command of trying to conduct these difficult tasks while simultaneously planning and executing offensive operations. Specifically, leaders at all levels must analyze the following factors:

- A. Number and type of available units.
- B. Task organization for urban combat.
- C. Availability of critical weapons systems.
- D. State of training and discipline (training for urban warfare is imperative).

E. Strength in terms of men and materiel in relation to enemy and size of up area.

F. Aviation support available.

G. State of maintenance and supplies.

H. Available combat support (based on availability and mission requirements).

I. Available CSS (critical logistical and maintenance items).

J. Host nation support available. If the city's occupants are friendly to the attacker, then support in intelligence, deception, and diversion may be possible.

V. Determine constraints.

A. Tactical task. This could be a requirement to do something as directed by a higher commander such as clearing a specific area. Specified and implied tasks within units operations order will require specific actions which are time, resource and manpower requirements. A task routinely done outside an urban area, such as security of a command and control node could, in MOUT become a significant constraint in that it will require more troops and equipment to accomplish.

B. Rules of engagement. Rules of engagement in the urban environment may present the most significant constraint to operations. Historically, the US military has gone into urban operations with restrictions on the use of fire support assets. These restrictions in turn drove commanders into suboptimal courses of action in which they incurred high casualties. A method to mitigate the impact of rules of engagement restrictions is to increase the protection of organizations operating within MOUT through the use of lightly armored vehicles. Vehicles such as the USMC Light Armored Vehicle,

and the US Army's Bradley Fighting Vehicle and Fox Chemical Reconnaissance Vehicle, as well as many others provide protection up to large caliber crew served, direct fire weapons. Protected against direct fires, forces operating in an urban area can then maneuver against the threat without causing an extreme amount of collateral damage. Equally important are the rules for the application of deadly force. Often time's rules of engagement require a hostile act or gesture prior to the use of deadly force. In the urban environment, due to close in distances and fighting, even the slightest hesitation can result in death.

C. Prohibition of Action. Prohibition of action may be the inability to do an activity that would normally done. In urban combat, this might be a restriction on the employment of reconnaissance or a prohibition against the use of indirect fires unless certain precursors are met.

VI. Identify critical facts and assumptions.

A. Facts. Statements of know data concerning the situation, including enemy, friendly and civilian population dispositions, troops available, and material readiness. Although the operational environment is discussed during the initial IPB, whether the operational environment is permissive, uncertain or hostile is a critical fact during the mission analysis. The operational environment in part how the commander task organizes forces and assumes risk during the operation. Additionally, if non-lethal attacks have been conducted as part of an information operations campaign then the known effects should also be considered as critical.

B. Assumptions. Assumptions are suppositions about the current or future situation that are assumed true in the absence of facts. Assumptions must pass the test of

validity and necessity. Assumptions must most likely be true and must be essential to planning for the upcoming operation. The effectiveness of information operations in the urban environment may be an essential assumption during the mission analysis process. The prevalence of radio, television, and printed media make the urban area rife for the conduct of information operations.

VII. Conduct risk assessment.

A. Accident risk hazards. Fighting in urban areas only increases the lethality of accidents, which occur daily in cities and towns throughout the world. Weapons effects increase the likelihood of fires, building collapse and loss of utilities. Broken pipes can lead to gas leaks and fires, as well as raw sewage leaking into water supplies. Aircraft operating within cities not only have to contend with enemy weapons, but must also search for wire obstacles. Particular attention should be given to the backblast of weapons and spalling effects.

B. Tactical risk. Areas where commanders accept risk in MOUT may be in the allocation of troops to task, specifically, how allocation of combat power to completing secondary tasks. Employing organic reconnaissance during MOUT risks compromise due to physical differences and unfamiliarity with the area. Makeup and positioning of a reserve may be an area where commanders also assume risk.

VIII. Determine initial commander's critical information requirements.

Commander's critical information requirements are information required by the commander, which affect his decisions and dictate the successful execution of the operation.

A. Priority Intelligence Requirements. Priority intelligence requirements are those information requirements, which are vital to the friendly commanders decision-making process. Several examples of PIR for urban combat are:

1. Will the commander use noncombatants as protection and how?
2. How much force does the commander have inside and outside the town?
3. What will cause the commander to commit his counterattack force and how long will that force take to get there?
4. How will the enemy commander reinforce weakened positions that friendly forces are about to exploit.

B. Essential Elements of Friendly Information. "The critical aspects of a friendly operation that, if known by the enemy, would subsequently compromise, lead to failure, or limit success of the operation, and therefore must be protected from enemy detection" (US Army 1997, 1-62).

1. Method of movement toward the objective (air, truck, or foot infiltration).
2. Breach point location.
3. Number of companies or battalions the commander plans to send into the village.
4. Will all heavy forces be up front at point of entry into the urban area or will there be a heavy team reserve and where?
5. Location of assault positions.

6. Attack aviation forward area refueling and rearming point, air attack routes, and battle positions.

7. During the attack, will the enemy withdraw to keep a tactical advantage?

8. If the enemy is forced out of the city, where will he go and how can we influence or affect his decisions?

9. Rehearsals--branch and sequel development and reaction.

C. Friendly Force Information Requirements. "Information the commander and staff need about the forces available for the operation" (US Army 1997, 1-72). A logical deduction is that these information requirements should be items that cause the commander to make decisions that impact the plan.

1. Recon captured or compromised.

2. Main bridge locations along ground route that have been blown.

3. Operations order compromised.

4. Expected personnel and equipment replacements that did not arrive.

5. Reserve in contact.

6. Loss of extraction vehicle or aircraft.

IX. Determine the initial reconnaissance annex. Based on the initial IPB and commander's critical information requirements, gaps in intelligence are ascertained and the initial reconnaissance and surveillance plan or collection plan is developed. The G3 (S3) then turns this plan into the initial reconnaissance annex in order to begin the reconnaissance effort. Due to limitations in sensor capabilities, reconnaissance in the urban environment is reliant on human intelligence, however, unmanned aerial vehicles

and observation helicopters may be able to provide limited surveillance of key nodes, subject to obstacles to flight and enemy surface to air threat. National Intelligence Support Teams are routinely in support of division or joint task force commanders. These support teams have the capability to “reach back” to the national intelligence agencies for information collected by national intelligence gathering agencies.

X. Plan available use of time. The operational commander must also understand the importance of time to MOUT. Succumbing to time pressure in urban combat can result in hasty planning and tactical movements causing increased casualties and collateral damage. Commanders conducting MOUT must also consider time in relation to the entire campaign. If MOUT is only a portion of a campaign or operation, a slow and deliberate urban attack could slow the tempo of an entire offensive. Enemy forces may use the defense of an urban area as a means to gain time to prepare other defenses, to reorganize, or to influence the strategic situation through increasing casualty rates and resource expenditure. Successful MOUT requires the maintaining pressure on the enemy through either lethal or non-lethal means, otherwise, time will favor the defenders preparation of their defense.

XI-XVII. Products and outputs produced from steps 1-10. These steps of mission analysis are beyond the scope of this study.

CHAPTER 5

CONCLUSION

We should not be too quick to criticize the Russians in Grozny.
All of these lessons were experienced in Hue.

LTG George R. Christmas, 1998 Urban Warrior Commanders Conference

The United States military will face an increasing number of operations in urbanized areas in the twenty-first century. They can range from humanitarian operations, stability, and support to high-intensity combat. The US Army's approach to MOUT is to treat it as an environment, just like jungle, cold weather, and desert operations.

The urban environment is unique in two distinct ways: (1) it is a combination of man made vertical and horizontal structures imposed on the existing terrain, and (2) the urban battlefield unlike any of the other environments, can change radically as urban combat is conducted. Buildings will collapse, piles of rubble will obstruct mobility corridors, and fields of fire and observation will be altered as forces close in combat operations. Although the decision-making processes remain the same for MOUT as for the open battlefield, the dynamic change in the factors of mission, enemy, terrain, time, troops available, and civilians are unique. Therefore, an in-depth analysis and training are paramount to US success in future MOUT operations.

The US military's legacy in MOUT is to adopt an attritionist standpoint, as in the battles of Aachen, Manila, and Hue. Recent experience has shown an increased will to limit casualties, collateral damage, and time that US forces spend in urban combat. The US military's experience during Operation JUST CAUSE showed that with timely

intelligence, precision attacks in an urban environment can have resounding success. However, just four years after the invasion of Panama, a lack of accurate intelligence led to the failure of the US mission in Somalia. Undoubtedly, with the improvement in intelligence collection methods and sensors, US knowledge of the enemy situation is likely to improve within urban areas; however, despite improvements in the ability to collect intelligence on the enemy operating in the urban environment, it still remains the enemy's sanctuary. Fighting in cities and built-up areas risks high casualties. The US Army's institutional training system should incorporate MOUT scenarios in school decision-making and staff-planning exercises as well as in the Combat Training Centers. MOUT sites and training areas are presently built to enable squads, platoons, and companies to rehearse and practice tactics, techniques, and procedures for the MOUT fight. Training sites and scenarios must be utilized which enable brigade and division level staffs, to analyze, prepare plans, and execute the urban fight. Mission analysis must provide commanders with a level of analysis that enables them to visualize the battle and give clear and effective guidance. Without updated doctrine and training experiences, commanders and staffs will be forced into the US military's legacy of attrition style urban warfare, a style and type of combat that the national will does not accept. As was the case with Lieutenant Colonel Cheatham on the eve of his battalion's employment into Hue, mission analysis should not consist of reading manuals to ascertain the best way to fight.

Recommended Topics for Further Study

The US Army and United States Marine Corps have undertaken a joint experimentation process in the development of MOUT equipment, tactics, techniques, and procedures. In conjunction with this experimental process, the following topics are recommended for further study.

1. Review and refine of Division and Brigade MOUT doctrine, specifically the considerations that must be taken into account when planning for military operations on urbanized terrain.

2. Review the current level of MOUT instruction in the officer and noncommissioned professional education system. Review instruction in terms of doctrine, planning for operations, as well as tactics, techniques, and procedures.

3. Review available MOUT training facilities and simulations in order to determine whether they are adequate for conducting brigade and division training and simulations. Is there a need to build a training center in which a brigade, as part of a division fight, can be immersed?

Conclusion

American military involvement in future urban combat operations remains inevitable. The urbanization of the world and the importance of cities and urban centers as political and cultural centers of gravity will only increase the likelihood of conflict occurring within cities and built-up areas. As the US Army rewrites its urban operations doctrine, it is important for commanders and staffs to develop improved techniques at planning and conducting MOUT.

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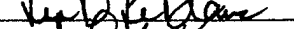
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